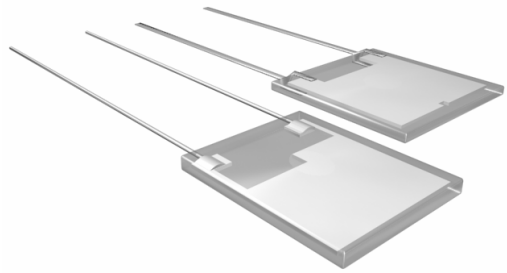
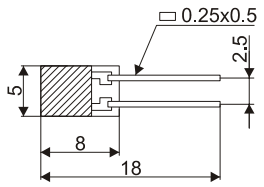
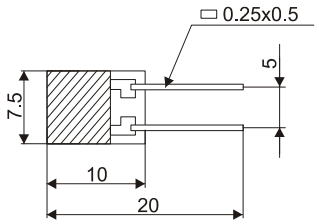
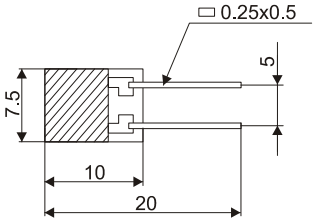
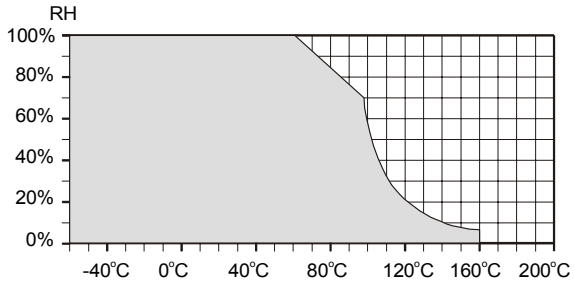
Thin-film Humidity Sensing Element SH

- **Low cost**
- **Wide T/RH operating zone**
- **Operating temperature up to 200 °C**
- **Excellent sensibility**
- **Very good dynamic properties**
- **Short response time**
- **Long-term stability**

The SH relative humidity sensing element consists of a system of electrodes on a glass-ceramic substrate, covered by a humidity-sensitive polymer coating and a water-vapor permeable metallic membrane. This coating system represents a humidity-dependent capacitor. Utilizing the principal of capacitive measurement, SH measures relative humidity in air or other non-aggressive gases and gas mixtures with good long-term stability and linearity, small hysteresis, and excellent dynamic response.



Technical specifications

Variant	1	2	3
Specifications			 Double layer structure (1)
Working zone			
Measurement range	0…100 %RH		
Operating temperature	-60...200 °C; with protective cap **(option)** : -40...110 °C		
Temperature dependence	RH' = [RH + a*(T-25)]*(b_0+b_1*T+b_2*T^2), where: a = 0.04 for T ≥ 25 °C, 0 for T < 25 °C; b_0 = 0.98; b_1 = $6x10^{-4}$; b_2 = $6x10^{-6}$		
Permissible voltage	max. 3 VAC (no DC voltage allowed!)		
Nominal capacitance	115 ± 15 pF at 20 °C	135 ± 10 pF at 20 °C	
Sensitivity	0.27 ± 0.08 pF / %RH	0.3 ± 0.05 pF / %RH	
Non-linearity	< 1.5% at 5…95 %RH	< 1.5% at 5…95 %RH	
Hysteresis	< 1.5 %RH at 5…95 %RH	< 1.5 %RH at 5…95 %RH	
Long-term stability	< 1 %RH per year	< 1 %RH per year	
Response time	< 10 s	< 10 s	
Loss factor	< 0.03 at 10 kHz	< 0.03 at 10 kHz	
Operating frequency	5…200 kHz	5…200 kHz	
Application	climate control, handheld meters, humidifiers, dehumidifiers, HVAC and industrial applications, high-temperature applications		

Ordering code SH✶ - #1

Code	Feature or option	Code values
✶	Variant	**1**, **2**, **3** (1)
#1	Protective cap	**X** - none, **P** - plastic protective cap

(1) Double layer structure makes the elements more resistant to external mechanical influences (variant '3').